Florida WILDLIFE®

July-August 1995 $2.95

Coasts

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FLORIDA WILDLIFE (ISSN 0015-4369) is published bimonthly by the Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Second-class postage paid at Tallahassee, Florida. Post Office Publication Number 202440. Materials in FLORIDA WILDLIFE include copyrighted materials that are property of individual contributors. Written permission to use the Publisher's materials will be granted by the editor for noncommercial, public informational purposes. Manuscripts, photographs and other submissions are received only with the understanding that the Publisher assumes no responsibility for any loss or damage. Contributors should request "How To Submit" before sending materials.

Single copy price $2.95. Subscription prices are: one year $10 (6 issues); two years $19 (12 issues); three years $27 (18 issues). Add $5 per year for foreign mailings. Postmaster: Please send address changes to: FLORIDA WILDLIFE, Circulation Office, 620 South Meridian Street, Tallahassee, FL 32399-1600; (904) 488-5563.

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COVERS

Doug Perrine captured this hawksbill sea turtle gliding along the ocean floor on the front cover. James Valentine's picture of Florida dunes graces the back cover.

ACKNOWLEDGEMENTS

Tricia Roberts, office manager; Jeff Johnston, circulation assistant; Bill Greer, contributing photographer; Scott Ball, consulting editor; and Rose Printing Company of Tallahassee.

Printed on recycled paper.

Doing Right By

By William B. Brooks Jr.

The Northern right whale is recognized as the rarest of the world's great whales. Current estimates indicate that no more than 350 survive in the North Atlantic waters.

These large whales can grow to 55 feet in length and weigh 40-60 tons eating only small zooplankton. Right whales are black and have a broad, flat back with no dorsal fin. They have two blow holes and thus have a V-shaped blow when looking from fore or aft of the whale. The flukes/tail are deeply notched, black on both top and bottom with a smooth trailing edge. They are individually identified by callosities or wart-like patches on the head to which small crustaceans, cyamids, cling.

Right whales were the first of the great whales to be targeted by the whaling industry. Besides a food source, whales were harvested for their oil, for fuel and light, and for baleen, the hornlike substance forming a sieve along right whale jaws that was used like an early-day plastic.

Shore- and ship-based whaling fleets found that right whales utilize the continental shelf, located up to 100 miles offshore, and thus were easy to find. Because right whales are slow-moving and float when dead, they became a primary target. They were also prized for the quality and quantity of their oil and baleen. Based upon these characteristics, right whales obviously derived their name from the whalers because it was the "right" whale to kill.

The intensive focus of commercial whalers on the right whale left the species commercially extinct and close to biological extinction. Based upon genetic research being conducted today, with over half the population having been sampled, only three matrilineal genetic lines exist. This means that in the recent past, three mothers and their daughters were the only reproducing animals left in this population of right whales. These whales are still perilously close to extinction.

International protection from commercial whaling came in 1935 under the first International Convention for the Regulation of Whaling. In the United States, right whales were protected in 1972 by the Marine Mammal Protection Act and in 1973 the Endangered Species Act. In June 1993 the National Marine Fisheries Service (NMFS) designated three coastal areas of the U.S. as "critical habitat" for this species. The three areas include the winter calving area off of northern Florida and Georgia and two spring feeding areas off Massachusetts, one in Cape Cod Bay and the other in the Great South Channel east of Cape Cod. The effect of the designation essentially highlights for the public and government agencies the special importance of these right whale habitats. Currently, the NMFS is considering a proposed 500-yard, no-approach rule for the right whale, to further protect this highly endangered species from human-induced disturbances.

No more than 350 right whales, which calve along northern Florida, survive in the North Atlantic waters.

Thirty years ago, right whale sightings were extremely rare and were mainly concentrated from coastal areas off New England and Nova Scotia. Since the 1950s, scattered right whale sightings and strandings along Florida and Georgia were documented by David and Melba Caldwell, former Marineland of Florida curators and pioneer cetacean researchers. However, it was in January 1979 when Jim Couch, a photographer from the Georgia Department of Natural Resources, photographed a mother and calf right whale off St. Simons Island, Ga. that highlighted the importance of this area. This mother right whale was later matched to photographs taken of her in the Bay of Fundy between Maine and Nova Scotia from previous summers. Photographs of right whales have been compiled into a photo identification catalogue with over 300 active right whales. The female photographed off of St. Simons Island is the first whale in the identification catalogue – her identification number is 1001 and she has been named "Fermata."

Photo-documentation helped researchers determine a key element in the seasonal distribution and probable migratory routes for the Northern right whale. Right whales occur seasonally in the spring and early summer in the Great South Channel east of Cape Cod and Stellwagen Bank in Cape Cod Bay. ▷

Whales

DOUG PERRINE

By mid-summer they migrate north to the Bay of Fundy, the primary feeding and nursery habitat. In the early fall, numerous right whales have been documented on the Scotia Shelf where feeding, cavorting and mating herds are observed. In the winter (December-March) pregnant females and a few juvenile right whales migrate to the calving area along northern Florida and Georgia. The remaining portion of the population disappears during the winter months and their whereabouts remains one of the great biological mysteries.

Right whales are particularly slow-moving when a mother is accompanied by a calf. A mother and calf spend a significant amount of their time at or near the surface. Right whales are also extremely difficult to see on the open ocean. They have no dorsal fin and only a minimum part of the head and back surfaces when they breathe.

These factors, along with the fact that the calving area lies in a zone of high ship traffic, with the ports of Brunswick, Fernandina, Jacksonville, and the Kings Bay Submarine Base and Mayport Naval Station all in close proximity, expose the right whale to the threat of collision. This has been documented through several recent incidents: 1) a month-old right whale calf was hit by a large ship, which left it with three large propeller wounds down its back in February 1991; 2) a juvenile female that washed ashore dead on Amelia Island in March 1991 had a broken skull from a ship strike; and 3) in early January 1993 an 82-foot Coast Guard Cutter in route from Connecticut to New Orleans struck and killed a right whale calf approximately three miles east of St. Augustine.

Photo identification of right whales shows that 7 percent of the overall population bears scars or other evidence from interaction with ships. The loss of any individuals, particularly females and calves, will significantly impede the recovery of this species. Other major threats to the right whale are entrapment or entanglement in fixed fishing gear, habitat degradation and disturbance by vessels.

Monitoring of right whale activity by aerial observation of the calving area off northern Florida and Georgia coastal waters has been conducted since 1984 by the New England Aquarium, Georgia Department of Natural Resources (GDNR) and Florida Department of Environmental Protection (FDEP), with survey intensity dictated by funding, weather and site-specific requirements.

Today, extensive winter aerial surveys of the critical habitat along the Florida and Georgia coasts document individual pregnant right whales, mothers and calves, and juvenile groups that show up in the calving area.

CHRIS SLAY

Seven percent of the population of right whales bears scars or other evidence of interaction with ships.

A mother and calf sighted in 1995. CHRIS SLAY

Through funding from the U.S. Navy, U.S. Coast Guard and U.S. Army Corps of Engineers, an Early Warning Aerial Survey program was established and flown during the past two calving seasons. Every day, a team would fly the high-use area, weather-permitting. By distributing daily locations of right whales to port users, including the Navy, Army Corps of Engineers, dredges, port authorities, harbor pilots and the Coast Guard, vessels that transit the calving area during the winter months can be diverted from potential collisions with whales. Also, dredges under contract for the Army Corps of Engineers slow their nighttime transits to offshore spoil sites when whales are sighted in the area.

In addition to the Early Warning Survey, the FDEP and GDNR fly regular surveys of their coastal zones for right whale activity and confirm sightings reported by the public. Approximately once a week the coastal waters from Savannah, Ga. to Sebastian Inlet, Fla. are surveyed.

During the winter of 1993-94, over 50 right whales were spotted during aerial surveying; analysis of photos taken of these sightings revealed that a total of 27 right whales were seen. Of these, 12 were mothers and their calves.

Although data from this year's surveys, winter 1994-95, are still being reviewed, preliminary results show that again over 50 right whales were sighted, although some whales probably were viewed more than once. Fourteen of these were mothers and calves. Five of the mother/calf pairs made their way south, with several sightings from the Daytona Beach area. Two mother/calf pairs journeyed as far as the Vero Beach area. A majority of the sightings were within two miles of the beach and were seen from the shoreline.

Note: During the past five years, sightings of juvenile humpback whales have become more common, possibly indicating a rise in total population numbers. These juveniles measure between 25 and 35 feet in length, although when full grown their size exceeds that of right whales. A couple thousand humpback whales live in the Atlantic system.

If you see a right whale, you should report it to the Florida Marine Patrol at 1-800-DIAL-FMP (1-800-342-5367). Report the location and time, number of whales observed and direction in which they were heading.

William B. Brooks Jr. is a research associate with the Florida Marine Research Institute, a bureau of the Florida Department of Environmental Protection, where most of the time he monitors manatee populations in northeast Florida. He is an avid birdwatcher.

KEVIN R. PENNELL

Blowing Rocks Preserve

By Miriam Lee Ownby

Spring tide and a strong east wind sent waves dashing against the rocky shore. Great plumes of spray spouted from three-score holes in the rocks, blowholes and crevices that provided a waterworks display along a 4,000-foot outcrop of Anastasia limestone. I jumped back to escape a drenching when an especially high spout threatened, but I liked the feel of the mist on my face.

This may not sound like a south Florida beach but I stood at Blowing Rocks Preserve, 73 acres owned and managed by The Nature Conservancy (TNC) that stretch over a mile along Jupiter Island in southern Martin County. This is the largest such outcrop of Anastasia limestone along the Atlantic coast from St. Augustine to Boca Raton, where the limestone serves as bedrock. When builders use the rock, as the Spanish did in their fort at St. Augustine, they call it coquina rock for the coquina clams that lived 100,000 years ago whose shells form its bulk.

A colony of hundreds of tiny coquinas once startled me when I felt them moving around my bare toes at water's edge on a south Florida beach. When the swash left us they burrowed in un-clam-like frenzy into the sand, their shells of white, yellow, orange, pink, blue, lavender and blends of these, some solid, some with rays of deeper hues, a living and lively kaleidoscope. The tickle around my toes created by the frantic activity pleased me.

On another morning at Blowing Rocks I visited the northern end of the preserve where there is a sandy beach. A line of sea turtle tracks led from the tide line up the beach to the dune's base and returned. Disturbed sand at the apex of the tracks indicated a nest had been made and eggs laid. The size of the track and general pattern indicated a leatherback. This stretch of beach provides nesting area for three species – leatherbacks and greens, on federal lists as endangered, and loggerheads, listed as threatened.

The preserve has four distinct habitats – ocean-front dune, coastal strand, tropical coastal hammock and mangrove wetland. The first three lie on the Atlantic side of the island and the other on Hobe Sound, divided by a paved public road, state Road 707. The habitats aren't pristine. When TNC acquired the land, large stands of Australian pine and Brazilian pepper infested them.

I first visited in 1985 when TNC was beginning its restoration by clearing out these exotics. Large areas had to be completely cleared. Conservancy personnel used studies of natural coastal habitats to guide them in replanting. At first they purchased plants but soon established a nursery and shade house to do their own propagation. Volunteers provide much of the labor for this continuing project.

On my most recent visit, I walked along the shady path from the entrance through a flourishing hammock where bare earth had greeted me the first time. A volunteer who accompanied me said that she'd seen opossums, raccoons, squirrels and armadillos in the restored hammock.

At the crest of the dune I stood and looked out to sea. Pelicans played follow-the-leader above the waves. When the leader flapped wings they all flapped and when he glided they did too. Sometimes their line flew so close to wave crests I marveled that their wing tips didn't dip into the water.

On this day I found visiting the rocks at low tide less spectacular but just as interesting as the high-tide visit. I had a close look at the honeycombed rock and could look down into the holes without fear of getting blasted by spray. I saw how undercut the rock face had become and could see broken pieces lying on the beach below.

Several ruddy turnstones ran along the rock's edge, their little legs churning, heads thrusting in and out with each step. Two of them took flight and I was treated to the sight of the handsome harlequin pattern of back and spread wings.

After enjoying the beach scene I hiked along a trail that followed the dune ridge. Butterflies danced above the blooming sea grape, Spanish needles, prickly pear cactus and red-fringed tasselflowers. On the weathered gray wood of a stump the sun stood high in the sky, fine weather for lizards and time to think of lunch.

When I visit Blowing Rocks I usually take my picnic lunch to Coral Cove, a Palm Beach County Park just south of the preserve. No picnicking or coolers are permitted at the preserve, nor are pets allowed, but fishing, swimming, snorkeling and diving are acceptable. On my last visit the beach was lined with people surf fishing.

If you want to see the rocks blow, you can reach state Road 707 from the communities of Hobe South to the north or Jupiter to the south. The preserve's charm will reward your trip.

Miriam Lee Ownby of Plantation is the author of ***Explore the Everglades****, published by TeakWood Press of Kissimmee.*

BILL LEA

Outcroppings of Anastasia limestone, formed mostly of coquina clams, create the "blowing rocks" near Jupiter.

CHRONICLE OF COASTS

By Mary Tebo

My hand is braced against the fibrous trunk of a cabbage palm, and live oak leaves rasp my neck as I peer from a green haze out onto the white blaze of sun on bay water. I savor the smell of cedar and the dapple of sun in deep shade before I exit this tiny patch of coastal hammock, stepping past the "For Sale" sign and the utility post, back onto paved road. It's no longer habitat, it's real estate. And even though I can't afford it, I feel the sharp pang that comes of coveting it, lusting after ownership of a place that is rare and vital.

How many other creatures want a little piece of Florida coast? Migrating songbirds, anglers, weekend sailors, sea turtles, nesting shorebirds, developers, beach mice, salt marsh snakes, diamondback terrapins, mole skinks, wading birds, marsh wrens. For some it's just a want. For many, that little piece of coast is a requisite to survival.

1,200 MILES OF COASTLINE

Florida's coastline is about 1,200 miles long. No short description could cover it. Seven-hundred miles of this coastline are sandy, mostly in the form of offshore barrier islands. The other 500 miles are not. Sheltered by gradual offshore slopes that prevent large waves from breaking near shore, Florida's southern tip supports mangrove swamps, and the Big Bend Gulf coast harbors extensive salt marshes.

Though Florida has become famous for its sandy beaches, much glorified in travel posters and television commercials, the slow backwaters of mangrove swamps and salt marshes contribute abundantly to Florida's singular beauty and natural diversity. These areas, rich with nutrients from decaying vegetation, nurse juvenile marine life and feed a great variety of birds.

All of Florida's coastline adds to Florida's natural character. Studying it, I am reminded that almost every inch of this long, thin state once served as shore, washed by brine as sea levels fluctuated over the eons. Pacing old shores now far inland, collectors still find sharks' teeth and fossilized sea urchins.

SANDY BEACHES, DUNES, AND COASTAL UPLANDS

The sand in Florida's beaches and dunes comes mainly from two sources – millions of years of erosion from the granite Appalachian mountains, and ground bits of shell and coral from the ocean. Though a beach may appear simple and plain, it's a developing sculpture produced through the action of wind and salt water on sand. All of the animals and plants that live there must adapt to these forces. A beach's intertidal zone takes the full force of the pounding waves, so it cannot support any vegetation. Most animals that live there – and in the upper beach and near dunes beyond the tide – take shelter by burrowing. Many species of sea worms sieve seawater and sift sand for tiny particles of organic matter. These and tiny crustaceans and mollusks attract shorebirds such as sanderlings, sandpipers and plovers who search for them with their skinny bills. Above the tidal zone, where the sand is a bit looser, the skittering ghost crab hurries sideways and back and forth, seemingly on tiptoes.

Dunes farther from the reach of the tide form yet another zone in this coastal habitat. A dune begins as just a thin mound behind anything, even a single branch or old oil barrel, that catches the wind and makes it drop its sandy load. Before long, plants that specialize as pioneers on bare sand blow in and take root. These plants include sea oats, which grow faster when buried under sand. Not only do sea oats grow upwards, they send runners out to the sides, where they pop out of the slope. In this way, sea oats survive on the shifting sand, meanwhile making it a more stable place to live.

Once the sand dune is somewhat stabilized, other plants can begin to find a foothold. But surviving at the seaside is no easy task, the main problem being salt spray, which causes plants to dry out. Some plants, such as the seaside aster, deal with this problem by growing a woolly coating that keeps salt from penetrating their leaves and stems. Succulents, such as sea purslane, have very fleshy leaves that hold a lot of water and are thus able to dilute salt to a level the plant can tolerate.

Behind the dunes are sheltered, magical places, so peaceful that it's hard to believe they're so close to the spray and power of the wave-battered shore. Coastal strands are grasslands, knee-high meadows of drought-tolerant grasses and herbs. Mole skinks make their home here, growing fat on plentiful insects. Beach mice, which have evolved white fur as camouflage against the sand, forage in these grasslands for seeds to store in duneside burrows.

Maritime hammocks are the low forests huddled behind the dunes, filled with stunted live oak trees and cabbage palms. Farther to the south, sea grapes are common in these pygmy woodlands.

SALT MARSH

Where the Florida coastline is sheltered from waves, plants are able to colonize land that the outgoing tide exposes. In the northern part of the state, these plants are grasses. In the southern part of Florida, the subtropical mangrove trees grow out toward the water, actually building new land.

Salt marshes typically get their start as underwater plants colonize shallow mud flats. These plants trap sediments and begin to build up land so that it's exposed at low tide. At this point, cordgrass moves in, eventually covering the space with a thick mat of roots and stiff grass blades. The plants and the sediments they trap may weigh so much that the grassy patch may sink, flood and die out, or conditions may favor the plants and they may prosper. Salt marshes change all the time as grass sinks, or subsides, to become open water again or else emerges in new clumps from the sea.

The first plant to colonize a mud flat is usually smooth cordgrass, *Spartina alterniflora*. As it catches bits of dirt and decaying plants in its roots, it creates conditions for another common salt marsh plant, black needlerush or *Juncus romerianus*.

Sometimes "salt pans," barren areas where the salt water has evaporated and the soil is too salty for anything to live, develop in the middle of salt marshes. Yet on the edges of these desert-like patches, succulents such as glasswort and salt grass often manage to survive.

Salt marshes are very productive, growing as much plant material as fertilized agricultural fields. As plants die, microorganisms such as fungi, bacteria and protozoa break them down, making their nutrients available to other animals, such as snails, crabs, young fishes and shrimp. ▷

JAMES VALENTINE / BACKGROUND PHOTO BY BILL LEA

JAMES VALENTINE

Mangroves, which are able to obtain fresh water from salt water, are called "walking trees" because they appear to walk on the surface of the water.

Birds flock to salt marshes for the seafood feast. Familiar ones include snowy egrets, blue herons and the elusive clapper rail. The muskrat is a mammal inhabitant of the marsh, and the diamondback terrapin, once widely harvested for soup but now protected, is a common reptile.

MANGROVES

Mangroves, subtropical and tropical trees that cannot tolerate the frosts that chill north Florida, cover more than 494,000 acres. Mangroves colonize the sheltered tidal flats that salt marsh cordgrass grows on in more temperate climes.

Four different species of mangrove trees are involved, each specializing in a different zone according to the amount of standing water. The pioneer plant is red mangrove. Red mangrove seeds are specially designed to float in saltwater, bottom-heavy, until the pen-like root can spear a mud flat and take hold. Red mangroves are noteworthy for their prop roots, which give the trees the appearance of standing on tall, spidery legs. Many marine animals anchor themselves onto these prop roots. One European explorer made the mistake of thinking red mangroves produced oysters.

Red mangroves have special glands for excreting salt, as do their cousins black mangroves, which live in drier areas and are characterized by networks of stubby little "knees" – pneumatophores – which take in oxygen. White mangroves and buttonwoods, which look more like inland trees, specialize in the highest, driest sites in mangrove swamps.

Like salt marshes, mangroves feed marine animals with abundant amounts of leaf litter. By trapping sediments, mangroves actually build land, and protect it during storms by breaking the force of high winds and waves. The sturdy branches of these trees are strong enough to support large rookeries of herons, white ibis, roseate spoonbills and wood storks, among others.

THREATS

Sandy beaches and dunes, salt marshes, and mangroves have persisted in Florida for hundreds of thousands of years. Each of these habitats contains plants and animals highly evolved to deal with inherent natural stresses, but nothing has prepared them to deal with the myriad impacts of human development.

Many beaches and dunes have been paved and pinned beneath high-rise hotels and marinas. These areas, Miami Beach or Cocoa Beach, for example, are hardly hospitable to native wildlife. Their sand erodes and must be replaced with sand dredged up and spit back from offshore, often at taxpayers' expense. A more insidious threat, the exotic Australian pine, transforms bare sand to dense stands of shady trees. Sea turtles can no longer dig through the dense leaf litter to nest. Coastal strand grasses die out in the darkness; reptiles, birds and mice are left with no cover and no food.

Salt marshes have been ditched for mosquito control, altering water level and water flow. Both salt marshes and mangroves have been dredged and filled to make more land for office buildings, condominiums, parking lots, restaurants, campgrounds: Places-with-a-View.

HABITAT OR REAL ESTATE?

How can we all get the little piece of coast we want? For people who respect native species, it's more than a matter of making a down payment. It's sustained and strenuous promotion of co-existence. As coastal habitats become real estate, we are the only ones who can determine whether our natural heritage will be sacrificed as part of the closing costs. ◆

Mary Tebo is a nature writer.

WHAT YOU CAN DO

- Tell lawmakers about native species you value. Make them aware that wildlife protection is a priority for you.

- Find out about exotic or introduced plants that are destroying coastal habitats in your area, such as Australian pine. Work with wildlife agencies and conservation groups to uproot these invaders.

- Avoid areas where shorebirds are nesting, such as isolated beaches and mangroves. Be sure to restrain pets from running down the beach pursuing birds.

- Organize or participate in a coastal cleanup. Garbage dumped into the ocean has become a big problem for all coastal areas. The Center for Marine Conservation organizes the world's largest volunteer clean-up effort every fall. This year's date is Sept. 16. Call 1-800-262-3567 to participate. If your business, family or club can make a longer commitment, call Keep Florida Beautiful at 1-800-828-9338 to adopt-a-shore.

- Subdue beach lighting so that it will not repel nesting sea turtles. Yellow tungsten bulbs are thought to be more turtle-friendly than standard light bulbs.

- Consider a conservation easement for a privately owned coastal site. Ownership can be retained yet the site will be protected for the future.

- Learn about the State Conservation and Recreational Land (CARL) program. Educate friends and conservation group members about CARL procedures and how to lobby for state purchases or additions to the list through letter-writing.

JEFF RIPPLE

FLORIDA'S MARINE TURTLES

By David Arnold

On a warm, humid summer evening, soon after sunset, a dramatic natural phenomenon is about to unfold. A soft breeze is just enough to keep bugs from attacking. A group of wide-eyed visitors crouches on the beach in almost total silence.

The second largest assemblage of the endangered loggerhead sea turtle is found along the Atlantic shore between Brevard and Broward counties.

LOGGERHEADS

Just moments before their arrival, a female loggerhead turtle had slowly and laboriously crawled from her ocean home up the beachface toward the dune. She has already pushed aside enough sand so that her body rests comfortably on the surface. With her hind flippers, she has carefully scooped sand from a flask-shaped cavity that extends 18-24 inches beneath the surface. Because she cannot see her work, she instinctively extends her flipper into the chamber and knows that all is right.

She is totally motionless for a few moments and then suddenly releases one egg, then a couple more, into the nest. Each time she inhales, her hind flippers slightly rise and a few more eggs drop.

The group approaches from behind. By the light of the moon and stars they see her still-damp shell, characteristic large head and heavy jaws. Had the group approached while she was preparing the nest, the loggerhead may have been frightened, but at this stage will not likely abandon her nesting activity as long as the group remains quiet. One by one, the visitors peer into the darkness of the nest cavity to see the whitish, soft-shelled eggs, about the size of ping-pong balls.

Loggerhead sea turtles nest in Florida between late April and September. LYNN STONE

The only herbivorous sea turtle, the green, has been exploited commercially for its meat more than any of the others. Females nest May to September.

The turtle will lay an average of 100 eggs now, but she may come back several more times before the summer is over. She will not return again to these shores for a period of two or more years, depending on her age and the conditions at feeding grounds located throughout the Caribbean. Her nest is one of some 40,000-60,000 that will be laid in the southeastern United States during an average year, with over 90 percent of those being placed along the Atlantic shores between Brevard and Broward Counties. That represents the second largest nesting assemblage in the world of this threatened species!

Once the egg-laying is complete, the same hind flippers deftly push sand back into the cavity. Sand is carefully patted and tamped over the precious eggs and then with the front flippers the loggerhead scatters more sand over the nest, over her shell, and over the surrounding area. As she lumbers off toward the ocean, she appears to be satisfied that the nest is safely hidden beneath the sand. She has completed her maternal duties and will never know the results of her labor.

Incubating eggs face many dangers. If the nest is not destroyed by hungry ghost crabs, raccoons, coyotes or fire ants, or robbed by human hands, it may be washed out by storm tides, or run over by cars or beach cleaning equipment. An unknowing beach patron may push an umbrella pole into the nest, or an unconcerned resident may dig into the nest while installing poles for a new set of beach stairs. The nest may be buried by sand from a beach construction project or invaded from the roots of nearby dune vegetation.

Despite all of these threats, many eggs still manage to survive and 55-65 days after being carefully hidden, tiny hatchlings will tear open their eggshells and wiggle through the sand to assemble just beneath the beach surface.

On this summer night, as the onlookers leave, they are stopped in their tracks – hatchlings have just boiled out of a nest deposited by a turtle earlier in the year. It is a delight to watch the hatchlings as they scramble quickly across the beach. Perhaps because of the human presence, no ghost crabs snatch a hatchling before it enters the water. The predatory birds have gone to roost for the night.

The hatchlings now enter the aquatic realm where new dangers await. Hungry fish patrol the nearshore waters and the hatchlings must swim quickly through this area as they head for large sargassum (floating aquatic algae) lines farther offshore.

Once there, they must manage not to ingest the numerous bits and pieces of plastic, tar and other waste items that ride the same convergence zones as the sargassum. It will be a tough 20-30 years before the hatchling returns as an adult, probably to this very place. To do so, the hatchling must avoid being harmed by dredges, fishing gear, boats, power plant cooling water intakes, offshore oil and gas exploration activities, pollution and natural predators, plus manage to find enough crabs, clams and other shellfish to eat as well. Based upon exciting genetic research into the mysteries of marine turtles, we know that loggerhead hatchlings leaving Florida will undoubtedly wind up touring the Atlantic Ocean, feeding in the Caribbean, and ultimately returning to nest on our beaches.

A visit to the beach to see sea turtles nesting might not be as productive as this one. In many areas in Florida, beaches are no longer wide enough for successful nesting because of coastal armoring, which includes sea walls and other hardening of the shoreline, and erosion. On others, lights illuminate the landscape and the hatchlings cannot follow their instinctive cues toward the water, and instead, wander aimlessly until ▷

morning or become trapped in yards or dense vegetation. Unless the hatchlings make it to the water soon after dawn, they will quickly desiccate in the hot sun. Others are killed on roads or are scarfed up by lucky birds or scavengers who happen across lost turtles. Public awareness of the threats to marine turtles, their nests and hatchlings, and their habitat has succeeded in protecting many areas, but much more public support is needed if these magnificent creatures are to survive for future generations of Floridians to see.

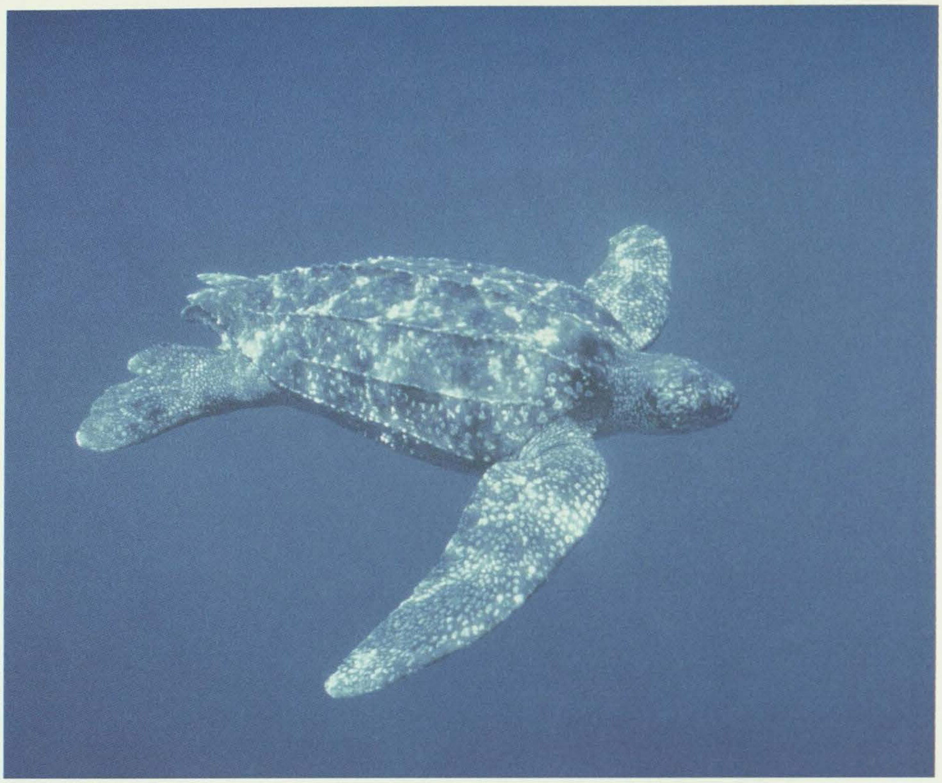
GREEN TURTLES

A much less abundant marine turtle, the green turtle, is listed as endangered in Florida. Green turtles nest primarily on the East Coast but occasionally along the Gulf of Mexico shoreline. Green turtles are not green; their name is derived from the color of their body fat. Florida's population of green turtles includes a large number of juveniles frequently seen along nearshore rocky hardbottoms. Their affinity for these areas has unfortunately caused a number of them to be killed in fishing nets set to capture nearshore fish that run in the early part of the year near these hardbottoms.

Concern for the high mortality of juveniles has caused debate over a partial ban of such nets for a part of the year. Such a ban, however, is unlikely since the constitutional amendment to ban certain nets within one mile of the shore along the east coast was adopted by Florida voters in 1994.

The number of green turtle nests on Florida beaches varies annually, with a range from 14 to 2,509 reported in the years between 1979 and 1992. Green turtles appear to have nesting patterns consisting of a low year followed by a high year, with occasional third-year highs mixed into the picture.

During 1994, green turtle nesting was widely reported along the Gulf of Mexico shoreline, causing numerous marine turtle watchers to become very excited. Although it is far too early to reach any conclusions about this nesting activity, volunteers will be sure to look carefully at the tracks on the beaches in 1995 with higher hopes.



DOUG PERRINE

Leatherback sea turtles may exceed 2,000 pounds in size.

LEATHERBACKS

An even rarer visitor is the largest of all marine turtles, the leatherback turtle, also an endangered species. These huge citizens of the open ocean may reach 2,500 pounds in size. They are unique in that they do not have a typical exposed hard shell, but rather a tough leathery-like skin covering their bony structure. Annual nesting recently has ranged from 100-200 nests which may represent only 16-31 adult animals, since they will nest 5-7 times per season typically. The leatherback is a rare visitor to the Gulf of Mexico beaches with nesting concentrated along the southeast Atlantic coastline.

HAWKSBILL

Although the hawksbill turtle nests in Florida, it is rarely reported, in part because of the difficulty in differentiating its tracks on the beach from other more common turtle tracks, but also because it tends to nest in the more tropical areas, such as the Keys. Frequent snorkelers and divers are familiar with this beautifully shelled animal which forages on sponges along the coral reefs. This animal is endangered because its shell was once harvested without limit for production of jewelry, combs and other trinkets. Only recently has pressure on the main consumers of such jewelry been successful in removing this product from the active trade markets of Japan.

KEMP'S RIDLEY

The most endangered of all marine turtles, the Kemp's ridley, swims around the Florida peninsula. The only known nesting assemblage for these animals is one small area of the Gulf of Mexico coastline in Mexico, although Pinellas County has had two recorded nests in recent times. Unfortunately, these smaller animals with lighter-colored, heartshaped shells were routinely seen dead along Florida shores, the victims of shrimping nets. The implementation of turtle excluder devices has greatly diminished deaths in Florida.

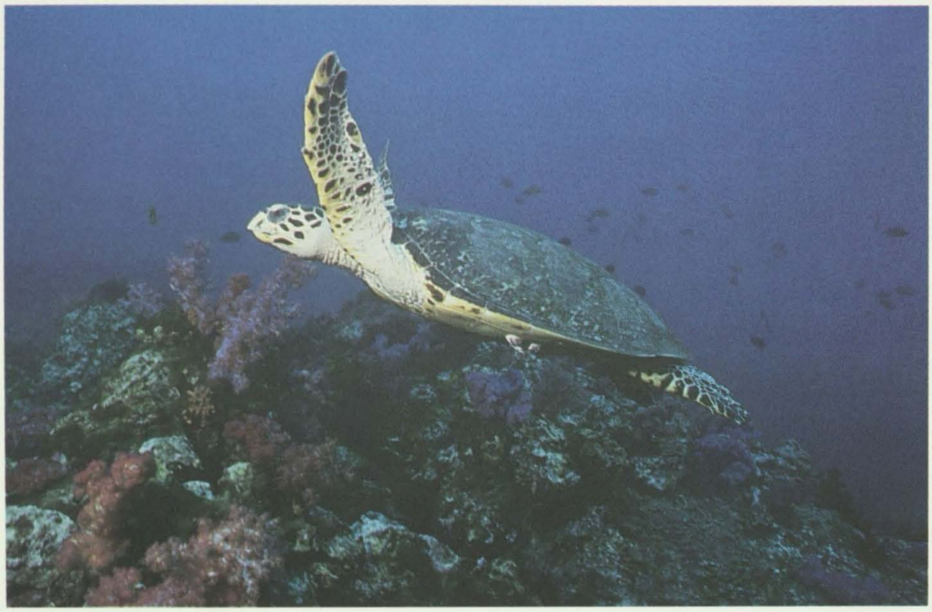
Survival of all marine turtles and ultimately their recovery is dependent upon reducing human-related threats they face both on the beach and in the ocean. Not only must we change our behavior, but we must also work cooperatively to maintain sufficient nesting, breeding and feeding habitats here and in other parts of the Atlantic and Caribbean. Public education as to the actions that can be taken is also critical.

For additional information on marine turtles and how you can participate in group tours to see nesting loggerhead turtles, please contact: Florida Department of Environmental Protection, Bureau of Protected Species Management, 3900 Commonwealth Blvd., MS 245, Tallahassee, FL 32399.

David Arnold administers the Bureau of Protected Species Management of the Department of Environmental Protection.

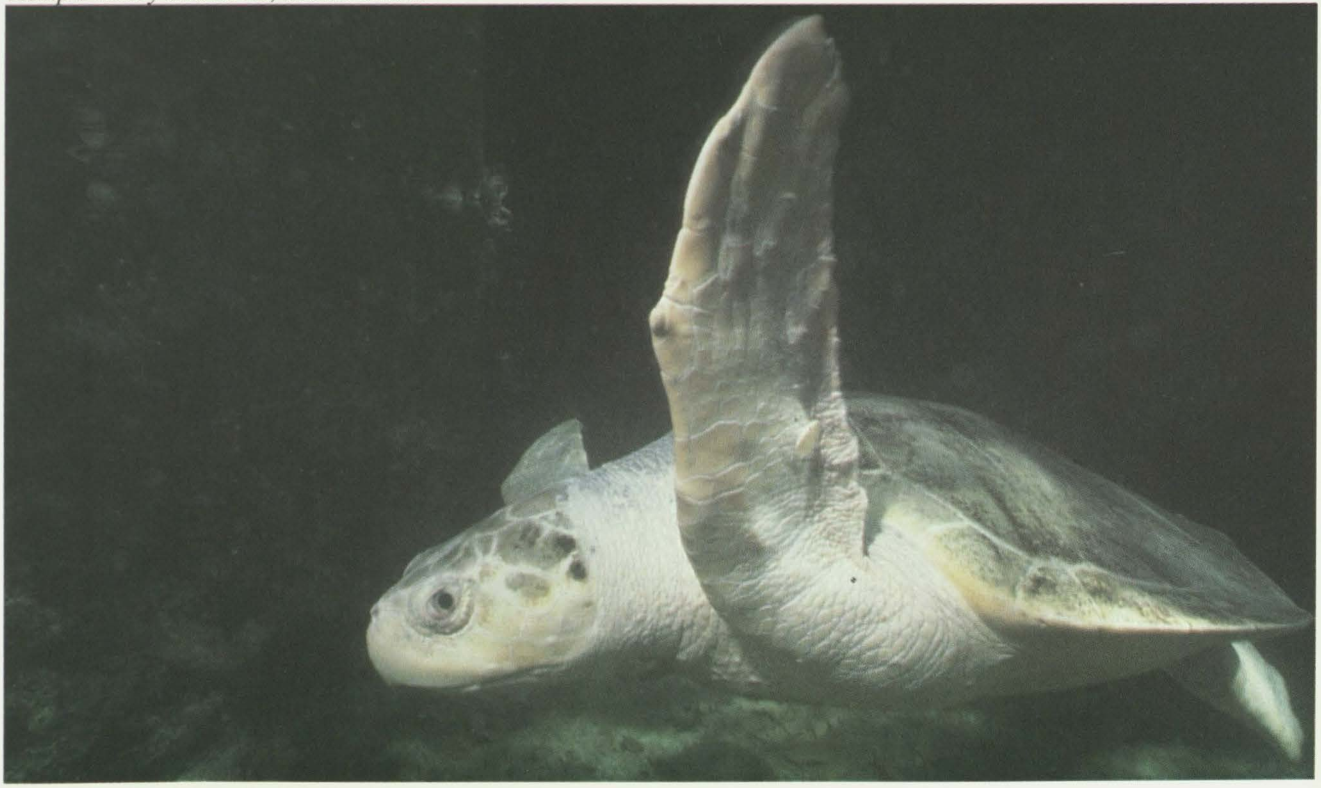
For more information, you can send for Florida Power and Light's exhaustive and free booklet, "Florida's Sea Turtles." The company's environmental affairs department also offers a bumper sticker that says, "Keep Sea Turtles In the Dark." These may be ordered by calling 1-800-342-5375 (DIAL FPL).

Save-A-Turtle is a group of hands-on volunteers who monitor sea turtle nesting in Florida. The address is P.O. Box 361, Islamorada, Florida 33036. The Caribbean Conservation Corporation works to protect sea turtles in the United States and the Caribbean. To join, contact it at P.O. Box 2866, Gainesville, Florida 32602, 1-800-678-7853.



Hawksbill sea turtle.
Kemp's ridley sea turtle, shown below.

PAGE 15 PHOTOS BY DOUG PERRINE



Undersea CORAL GARDEN

By Anja Burns

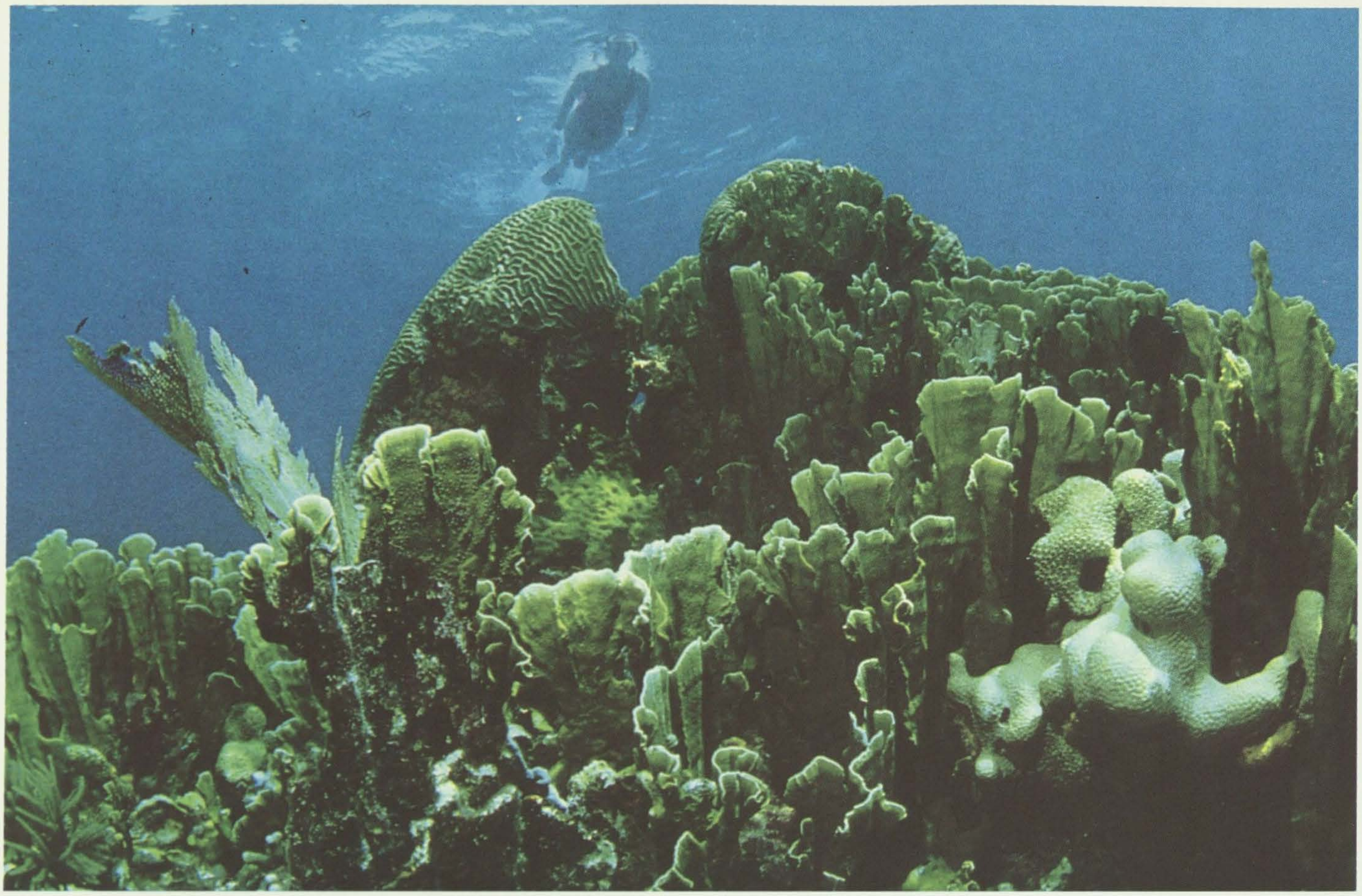
The Florida coral reef is the third largest in the world and the only living reef in North America. The coral barrier reef lies from four to six miles offshore from Key Biscayne south to the Dry Tortugas, although coral communities, formed of hardier species, grow in ledges as far north as South Carolina. Surrounded by mangrove forests and sea-grass beds, the reefs provide an underwater environment of great diversity and a kaleidoscope of colors.

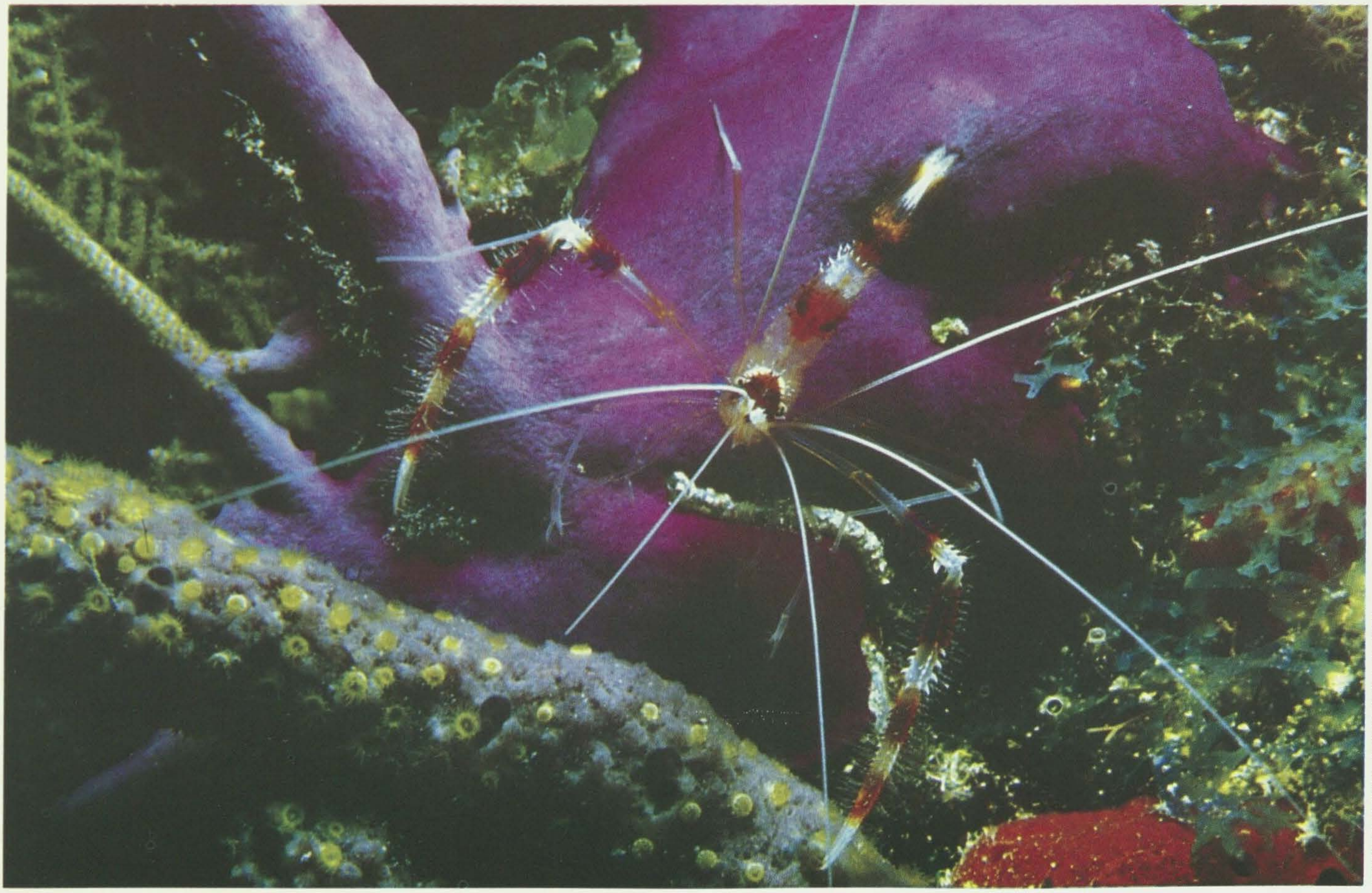
Coral reefs are colonies of tiny, tentacled coral animals called polyps that are attached permanently to limestone skeletons. Hiding during the day, the polyps open up at night to feed, excreting limestone. Friendly algae (Zooxanthellae) – red, purple and brown – gravitates to the coral and gives it energy. Grazing fish, food, temperature and light are very important for the coral to grow and survive. Because the corals are so slow-growing, it can take years for some to grow one inch.

Florida's coral reefs teem with abundant fish, sponges, jellyfish, anemones, snails, crabs and other sea life. Pot holes and small caves in the shelter spiny lobsters; spotted and green moray eels hide in crevices while nurse sharks frequently sleep under overhanging ledges. Schools of grunts and snappers cover the reefs, along with an occasional filefish or trumpetfish.

Curious angelfish glide by majestically and butterflyfish dart in and out of soft corals. Tiny arrow crabs are found hiding among gorgonians, and flamingo tongues cling to delicate seafans.

The Gulf Stream with its clear Caribbean water passes very close by the shore in some places. In Palm Beach County, for example, the coral begins only a couple hundred yards out and here colorful ledges encrusted with sponges and corals run continuously parallel to shore. In these waters, sightings of large marine life including sea turtles, manta rays, porpoises and whale sharks, as well as big game like sailfish, are frequent. ▷





PG. 17 PHOTOS BY LARRY LIPSKY

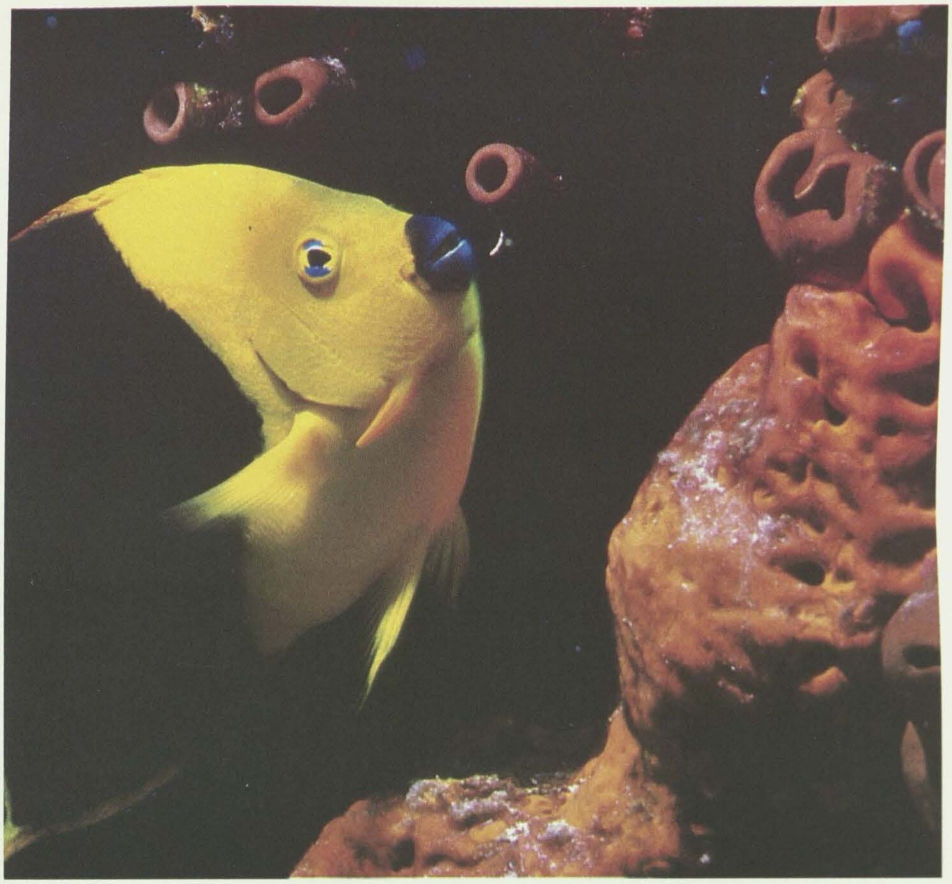
In the Keys, pollution is a major cause in killing coral. Nutrients from most of our waste cause algae growth, which is usually removed by grazing fish or queen conchs. With overfishing, a destructive, fleshy, usually green, algae takes over and smothers the reef. The Zooxanthellae vanishes and the coral is stripped of color, or "bleached."

Sedimentation caused by erosion, development and stormwater runoff also destroys coral.

The most instantaneous damage to our reefs is caused by freighters, leveling soft and hard coral formations, and careless boat anchor dropping. Besides human activity, some natural causes, including hurricanes and temperature changes in ocean currents, are also factors in the destruction of the reefs.

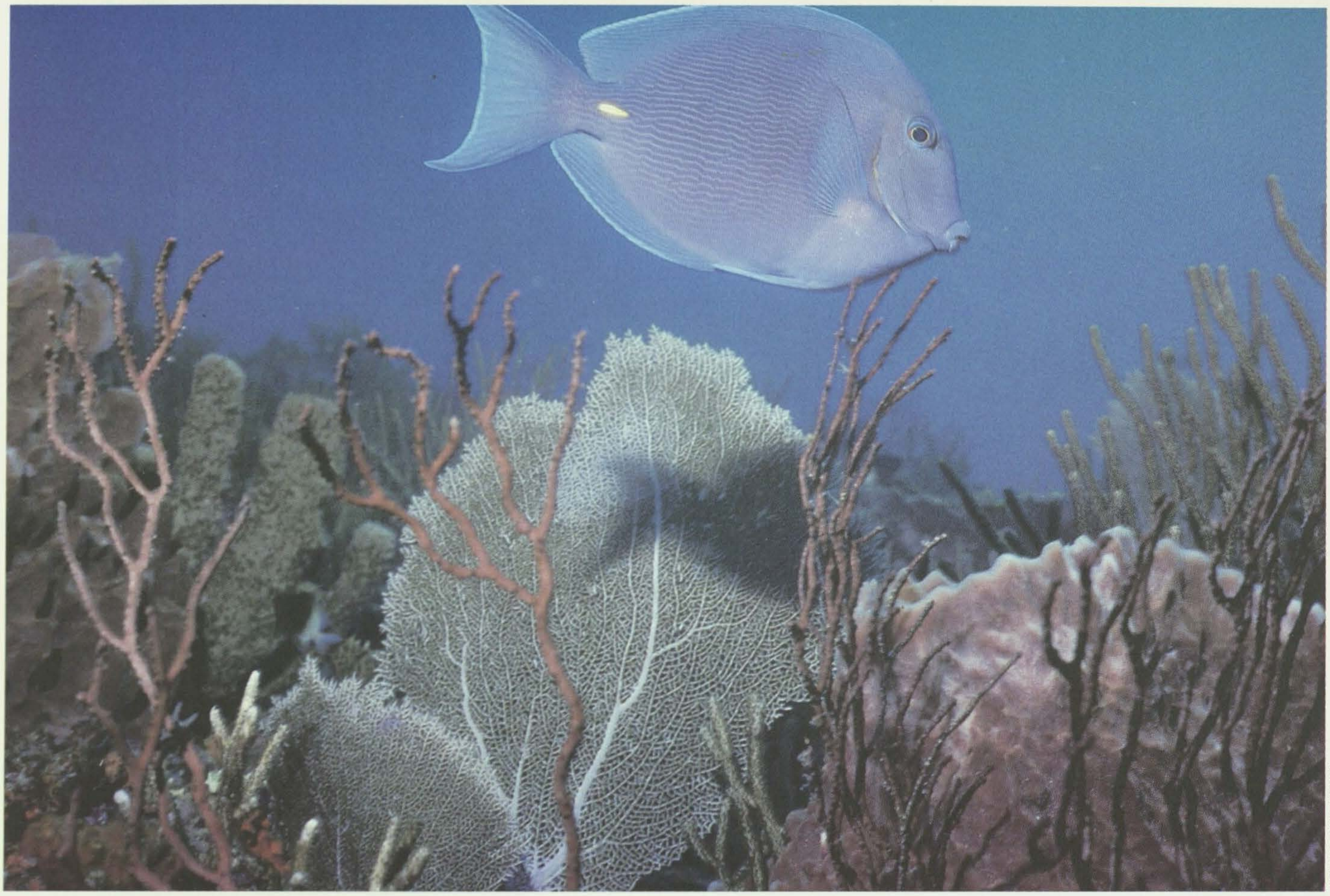
Sanctuary designations of the coral reefs provide protection, and the restrictions of certain activities – a small price to pay – help preserve this natural resource for future generations.

Anja Burns is an underwater photographer from North Palm Beach.



Page 17: diver and coral reef, banded shrimp
Page 18: rock beauty, queen angelfish
Page 19: surgeonfish, queen angelfish

PG. 18 PHOTOS BY LARRY LIPSKY



ANJA G. BURNS

LARRY LIPSKY

Fishing the LOXAHATCHEE

Text and Photographs by Bob Huttemeyer

For those of us who live near enough to fish it several times a week, the Loxahatchee River is a little piece of heaven straddling Martin and Palm Beach counties. Ancient Indian tribes accurately named it the River of Turtles, and the federal government has designated the Loxahatchee a Wild and Scenic River, the only one in Florida with this honor.

The river starts in Loxahatchee Slough, west of Jupiter. Several canals send run-off water to the stream, and four creeks — Kitchings, Cypress, Wilson's and Whiskey — add their flowage. Although much of the Loxahatchee is shallow, numerous deep runs hug the banks, and the depthfinder will show that many of these are more than 15 feet deep. It is in these deeper spots that most of the larger predator fish lie in wait for hapless forage swept downstream.

The Loxahatchee is a blackwater river and, judging by its many oxbows, an old one as well. The river has three forks — North, Northwest and South — but the Northwest Fork is considered the main branch. The North Fork, which enters the mainstream 1/4 mile west of the railroad bridge at Jupiter, extends north for about 2 miles, and terminates close to the Girl Scouts' Camp Welaka. The South Fork, a conduit for excess water from the C-18 Canal, goes south for about a mile before it dead-ends at the C-18 spillway near Indiantown Road.

From its headwaters down to the U.S. Highway 1 bridge at Jupiter the Loxahatchee is a gentle Southern belle, but once it flows past the bridge it enters the fast lane. Under the right conditions of moon-phase and winds, the current at the mouth of Jupiter Inlet, where the Loxahatchee enters the sea, can approach 8 knots. An ebbing tide, combined with a 15-knot or better wind from an easterly quadrant, can create dangerous sea conditions when it meets the crescent-shaped sandbar off the mouth of the inlet. The Coast Guard considers Jupiter Inlet one of the most hazardous on Florida's east coast. During the summer months, 12-foot johnboats transit the inlet safely, but from late September through spring the inlet is no place for the small boat.

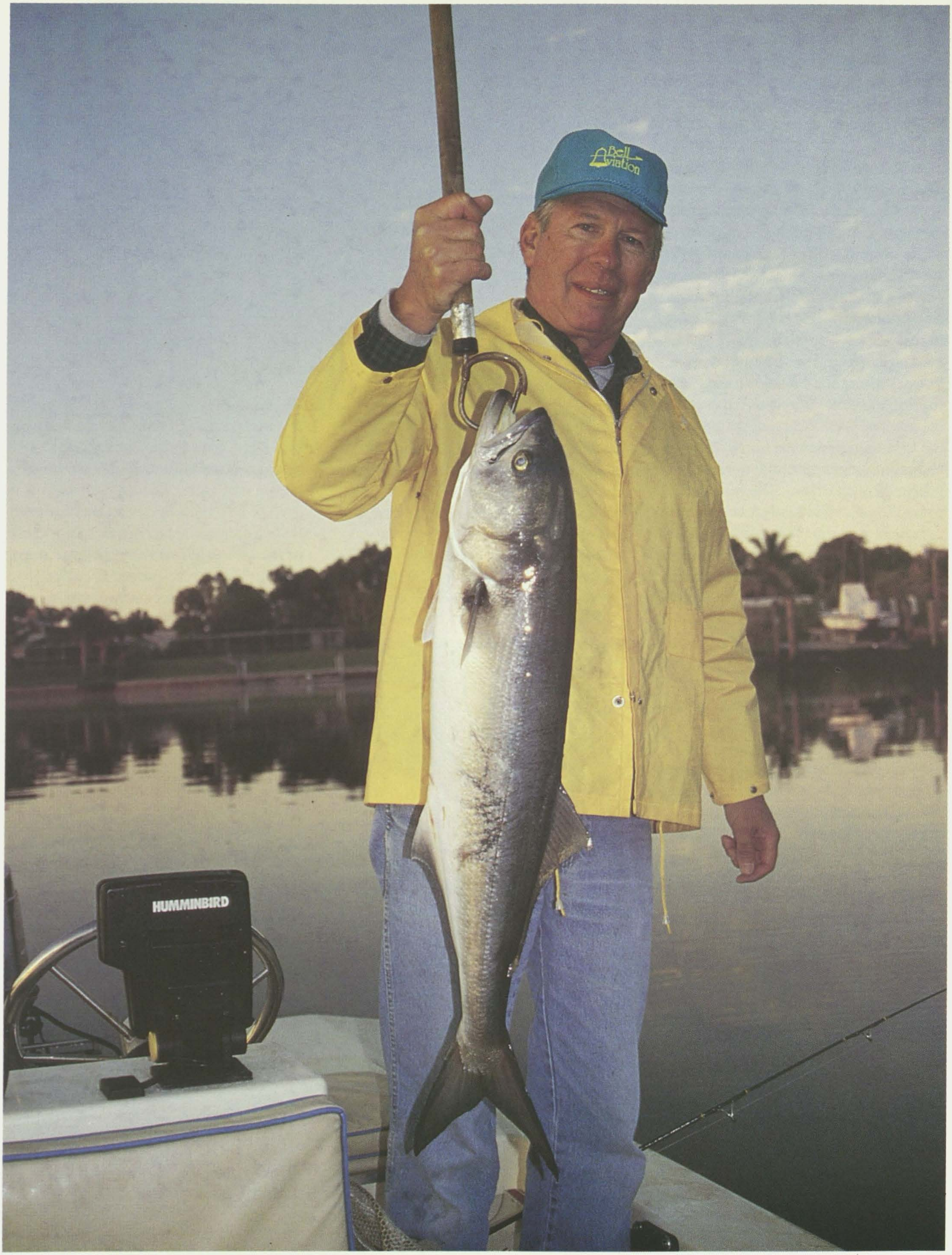
Most of the fishing takes place upstream, where the waters are usually calm. Since the varieties of fish caught vary with the seasons, let's start with summer.

The premier fish of the Loxahatchee has to be snook. The river contains not only the common snook, but fat (Cuban) and tarpon snook as well. The closed season on snook during June, July and August coincides with spawning time for the linesiders, when snook from the three branches of the river and the Intracoastal Waterway move to Jupiter Inlet and adjacent coastal waters. Here they congregate in great schools and furnish the optimum in catch-and-release fishing.

Once the snook have spawned, many return to the upper reaches of the river. These tend to be smaller fish (up to 10 pounds), but large snook from the inlet often will follow big schools of mullet well up into the freshwater portion of the river, near Trapper Nelson's Camp.

Upriver from Boy Scout Camp Tanah-Keeta (just over the Martin County line) the river runs through Jonathan Dickinson State Park, which contains 10,328 acres of sand pine scrub, pine flatwoods and river swamp, and is home to deer, wild hogs, turkeys, bobcats, raccoons and many lesser animals. Camping sites and cabins are available, and visitors can rent rowboats and canoes. A small lake in the park, Pine Lake, has a good population of bass and bluegills.

The lower, saltwater stretches of the Loxahatchee are policed by the Florida Marine Patrol; the upper part of the river is under the jurisdiction of the park rangers. Saltwater fishing licenses are required in the lower portion of the river, while freshwater licenses are needed if one fishes from Trapper Nelson's Camp to Indiantown Road. Furthermore, if a saltwater fish is caught and retained in the upper ▷


Bell Aviation
HUMMINBIRD

part of the river, the angler must possess a saltwater fishing license. Vice versa, an angler who catches and retains a black bass downstream in brackish water needs a freshwater permit.

Summer is probably the slowest time of year as far as fishing the river is concerned, but it is a great time to enjoy its natural beauty. Beautiful white swamp lilies are in peak bloom and, as autumn approaches, clouds of purple Carolina asters burst into flower along the river banks. Fishing in this atmosphere is like fishing in the Garden of Eden – the pond apples in trees along the banks are the forbidden fruit.

One of the fascinating charms of the Loxahatchee is the constant change in vegetation one notices proceeding upstream. Downriver the prevailing flora is mangrove, pine, Sabal palm and bald cypress, many of the latter killed by saltwater intrusion. Above the concession area at Jonathan Dickinson Park, live oaks, bald cypress, swamp maples, willows and pond apples predominate, along with big clumps of bamboo planted by the legendary Nelson.

Numerous ospreys nest in the tall, dead cypress trees, and ibis, Louisiana blue herons, great blues and colorful night herons are plentiful. Anhingas, cormorants and red-tailed hawks are common. Bald eagles nest in the park's tall pines from Labor Day until Memorial Day, and buzzards festoon the trees throughout the winter months. The best time to observe alligators is early morning, especially when the tide is low. Then the big gators lie stretched out on the exposed sandbars, catching the sun's warmth. Several families of river otters are in residence, and watching a mother otter teach her youngsters to fish is a real treat.

From late September through spring the Loxahatchee offers a smorgasbord to the light-tackle angler. Snook, jack crevalle, bluefish, ladyfish and sheepshead are the principal saltwater species. Black bass, bluegills and gar are caught upstream.

Some fish in the river – jack crevalle, snook, ladyfish, mangrove snappers and sheepshead – are euryhaline, able to adapt to either salt or fresh water. Through a process called osmoregulation, by which the fish eliminate 10 percent of their body weight daily in the form of low-salt urine, the fish can tolerate fresh water.

A quarter mile below Trapper Nelson's is a backwater that is filled with sunken trees. Nelson became a recluse in his latter days and put obstacles in the river to discourage visitors. This backwater is a good place to fish for bass, but be prepared for surprises. With a small, black floating Rapala I have taken black bass, bluegill, sheephead, snook, ladyfish and gar within a 100-yard stretch, and from water ranging from 1 to 3 feet deep. Small, floating plugs are the preferred lure here, but the bass will also take plastic worms. Fair bass fishing can be had from the recreation area on Indiantown Road (west of Florida's Turnpike) southward towards the back of Burt Reynolds' Ranch. The water is quite shallow and is best fished from a canoe. Several small canals empty into the river along this stretch, and the bass tend to congregate at these entry points.

While the average bass caught will be under the legal size, be aware that some lunkers live here. Raymond Baird, a Jupiter guide, told me of one of his clients who was casting a finger mullet toward the mangroves, hoping to catch a tarpon. A fish struck, but it turned out to be a 6-pound bass. My largest bass hit a plug close to the boat shed at Trapper Nelson's.

Many anglers get up early enough to fish around lighted docks in the lower river for an hour or two before first light. The lights attract glass minnows, which in turn attract snook, tarpon and jacks. Feeding activity around a lighted dock can be observed from a fair distance. A quiet approach to the area, using either trolling motor or push pole, is required, for the fish spook easily. Rebel Jumping Min-

Jack crevalles strike at first light along bulkheads and seawalls. Raccoons may be seen at river's edge, page 22. On page 21, the author displays a big bluefish caught in Tarpon Bay.

nows, Zara Spooks and Bang-O-Lures are among the more popular lures. Flyrodders favor Dahlbergs, Clousers and other streamers that sink quickly. It pays to drift rather than motor to the area you intend to fish. As a rule, you won't get more than two casts at a lighted area before the fish become aware of your presence and stop feeding.

Although fish around lighted docks can be caught on an incoming tide, most anglers prefer the first three hours of falling tide. During daylight hours the outgoing water is best, except for tarpon, which seem to prefer rising water.

At daybreak it is time to fish the bulkheads and seawalls for snook and jack crevalle. Most of the walls below the Island Way Bridge will have resident snook and opportunistic jacks. Get to a good wall at first light as the tide starts running out and you will see exploding feeding frenzies and wakes of patrolling snook guaranteed to get the adrenaline flowing. A splashy topwater lure, worked slowly, and as close to the wall as possible, will draw strikes. Then comes the tough part, getting the fish away from the knife-sharp, barnacle-covered structure to safer open water.

One of my favorite places to fish for snook, tarpon, bluefish and large jacks is Snook Bay, a quarter-mile-long expanse just upstream from the park concession area. Deep water runs along the right-hand bank where snook lie in wait for their prey. Plug the mangrove-lined shoreline carefully but don't neglect the center of the bay. At times there will be 20- to 30-pound snook here, lying on the surface like great golden logs, seemingly sunning themselves.

Another honey hole is the mouth of Kitching's Creek and the water 1/4 mile in either direction from it. This is a good spot for snook, and usually more tarpon are rolling here, especially in the morning, than anywhere else on the Loxahatchee. A finger mullet or live shrimp, fished deep, can do the job, although flycasters catch their share of tarpon too.

When a bluefish cycle is normal, providing the weather to the north is cold enough to send them south, they will enter the Loxahatchee in late November. Excellent topwater fishing for the choppers can be had all the way from the flats above the railroad bridge to Kitching's Creek. The long sandbar running out to the No. 12 Buoy, the adjacent flats and Tarpon Bay are prime bluefish territory. Some of these blues run to 20 pounds, and they will try to pulverize any of those bass plugs in your tackle box that looked great but never worked on largemouths. They are a great fish to catch with the long wand, too. I like to fish with large flyrod poppers just to see the fish explode on them, but streamers such as the Clouser or any of the Deceivers also work well.

Many anglers are unaware that a year-round population of bluefish reside in the river. Darker in color than the sea-run fish, these blues tend to prowl the river independently, rather than in schools.

Ladyfish arrive by Thanksgiving and leave by Easter. Look for them between the railroad bridge and the No. 12 Buoy. They can be found on the flats as well as in 7 feet of water near the channels. A moving tide is preferred. Quarter-ounce jigs bounced off the bottom work just as well as live shrimp. I use 40-pound-test monoleader to withstand fraying, which also stands me in good stead when a jack or a bluefish takes the jig. Jigs work well in the deeper cuts of the river.

The resident population of tarpon run anywhere from 1 pound up to 25, and they are difficult to catch. Tarpon Bay, a deep-water cove located near the smaller Island Way Bridge, also holds some 80- to 100-pound silver kings. I have had a 100-pounder hit a jig intended for bluefish. I was thrilled to get two jumps out of that fish. Tarpon Bay also holds large jacks and blues, especially in the winter months.

For those whose interests lie in putting something in the frying pan, try the excellent sheepshead fishing upstream and around bridges and docks. Live shrimp or fiddler crabs are the preferred baits. Pompano are in residence during the winter months, as well as quite a few croaker and topsail catfish, all excellent tablefish. These three species are most abundant between Buoys 11 and 12.

Bob Huttemeyer is a free-lance outdoor writer from Tequesta.

Sea Kayaking
The Big Bend Coast

By David Gluckman

The sea was quiet and a loon called softly in the distance. The sky was overcast with those strange high clouds that seem to form circles around a dull winter sun. My boat was low in the water and moving smoothly along by soothing paddle strokes repeated like a mantra that fit into the background of quiet. A small flock of buffleheads dove in front of me and surfaced well to the side. It was January on the Big Bend Gulf coast, and all was well with the world.

For paddlers, the Big Bend is not only a great area to watch coastal wildlife, but is also the location of the Big Bend Seagrasses Historic Saltwater Paddling Trail, the only legislatively designated saltwater paddling trail in the country (1991). This trail is to be the first segment of a state circumnavigation trail for human-powered watercraft. It runs from the mouth of the St. Marks River to the mouth of the Suwannee River, some 85 miles east and south along the coast.

Bird life is surprisingly abundant on the Big Bend coast, along the route of the trail. An expanding population of bald eagles toward the north part, near the St. Marks National Wildlife Refuge, is often seen perched in trees or circling overhead throughout the day.

Saltwater ducks of all types settle in during the winter. One December we passed a raft of over 2,000 redheads feeding in the shallows around Keaton Beach. Buffleheads, loons and red-breasted mergansers are also common. It's amazing how close you can get to these critters in a kayak if you make a little effort.

Secluded areas like Hagen's Cove south of Keaton Beach are wonderful birding areas for all types of shore birds. At one low tide in February we counted over 60 great blue herons sitting like sentinels protecting innumerable dowitchers, dunlins, red knots and other flittering shore birds. A few miles south at Fisherman's Rest we saw a large flock of marbled godwits. One early morning passing South Pepperfish Key we saw a few hundred white ibis and white pelicans alternating flights into the rising sun in a most remarkable display.

Porpoises are common, but few large land mammals in the area can be seen from the coast. Occasionally a

DAVID GLUCKMAN

DAVID GLUCKMAN

For more information on the Florida Sea Kayaking Association, or to join this group of enthusiasts, write 9529 Kuhn Road, Jacksonville, FL 32257, or call (407) 295-5183.

Established in 1991, The Big Bend Seagrasses Historic Saltwater Paddling Trail is the only legislatively designated saltwater paddling trail in the country.

deer will swim out into the Gulf to escape dogs, and last year a black bear was rescued a mile or so offshore. However, for the most part you'll have to go inland to see the big ones.

The Seagrasses Trail has a short history. Since my first expedition along this area in 1985, I wanted to let more people know about the joys of kayak paddling in a part of the state where few had ventured. I also needed more paddling partners so I wouldn't have to paddle alone. With the help of a few friends, I decided to use some of my lobbying skills to get an official paddling trail designation. Not only would it get me more partners, but it would also help publicize the area to support state land acquisition efforts and get camping rights on the federal lands that were otherwise off limits. A small grant from the Division of Recreation and Parks of the Florida Department of Environmental Protection financed some of our expenses, and the rest is history.

My boat of choice for this is a sea kayak. A sea kayak is not a whitewater kayak. Most people glimpse various kayaks briefly on television and easily get them confused. A sea kayak is a long (13 to 22 feet), skinny (17 to 36 inches wide) boat that is designed to be relatively stable and go straight through calm and heavy seas. A whitewater kayak is short (under 13 feet), relatively unstable and designed to maneuver around rapids and rocks. You need to be able to roll a whitewater kayak (go over and come back upright without getting out of the boat), but you would rarely need to do this in a sea kayak in the water conditions you'll face in the Gulf of Mexico. Forget about whitewater kayaks for the Big Bend. They may be usable for short trips but they're uncomfortable and not really suited for this type of paddling.

Canoes can be paddled along this shore under the right conditions, but they're not as safe as sea kayaks when high winds blow up, nor are they as fast. I know a few people who canoed this coast, so it can be done, but all would have preferred a sea kayak, which is more versatile (safer, faster and cooler) than any other human-powered boat under Gulf shoreline conditions.

When a kayak is properly equipped and operational, water crashing on the deck is sealed out. ▷

With the skirt (a waterproof contraption that attaches to the cockpit and to your upper body) firmly connected, the kayak can safely handle large waves, depending on paddler skills, and needs only 8 inches of water to move smoothly along.

Once you get the right boat, there's almost unlimited paddling options in the Big Bend. If you want to do the whole Seagrasses Trail, plan for four to eight days of paddling – four days for the experts and eight for the rest of us. Ten to 12 miles a day is a nice leisurely pace. That usually translates into five to seven hours between campsites, including time for short stops and lunch breaks. During the winter, the sun sets early so I always try to set up camp by 4 p.m.

If you only want to do an overnight or a day trip, your opportunities are more limited, but not so you'd notice. Acquire a good set of nautical charts or a Florida Atlas and Gazeteer and you'll see water access along the coast at various locations every five or ten miles. Small coastal villages dot the trail about every 20 miles. These are interesting places to explore and find a solid meal, a small cabin or supplies.

Even if you just want to be on the water for a few hours, there are many good places to paddle. The historic lighthouse at St. Marks is one place to start. You can launch at the boat ramp near the lighthouse or directly into Apalachee Bay off the beach. Go east to explore the salt creeks and coastal oak hammocks.

Fishing from a sea kayak is a special treat. All those deep holes in the salt creeks along the coast become accessible, even at low tide (be ready to drag a little through the mud, however.)

Campsites along the coast are limited so plan ahead. It won't kill you to sleep in the spartina marsh, but it sure won't be comfortable. Be aware of the restrictions on private and federal lands and either get the appropriate permissions or stay away.

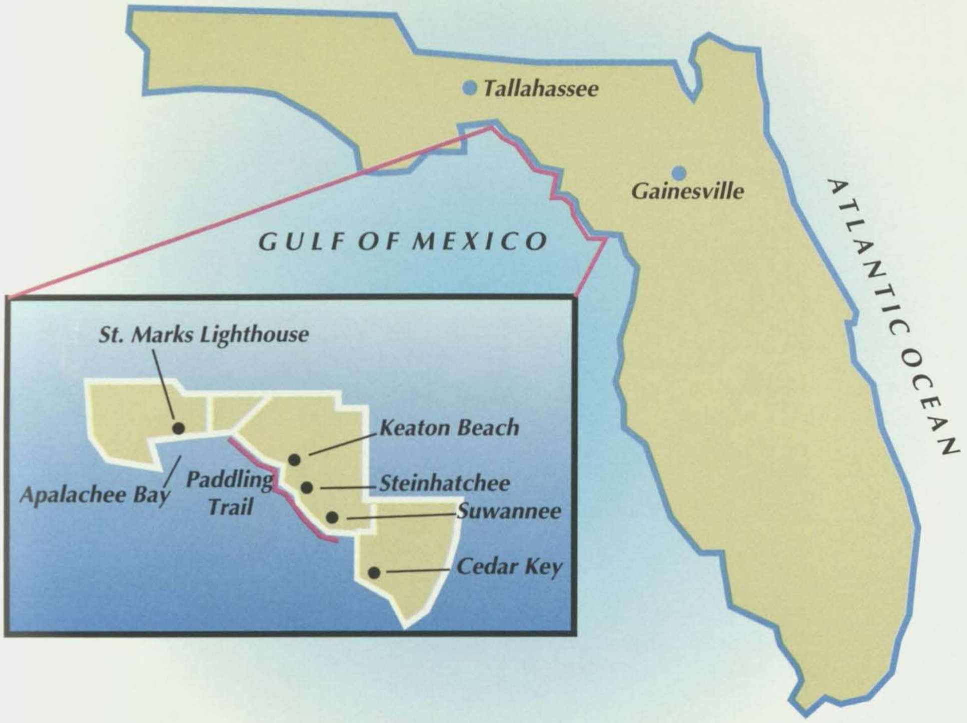
The new state park planned for the Econfina River down the coast is a pleasant place to camp. You can paddle the fresh water of the Econfina or head to the Gulf for fishing and poking around the salt marsh islands at the river's mouth. If you have a little more time you might decide to go by car to Hickory Mound impoundment, a few miles east, and paddle down Smith-McCallum Creek to Rock Island, a mile off the coast. Rock Island is one of the neatest islands in this whole part of the Gulf.

If your tastes turn to a more urban setting, go on to Keaton Beach. Plan to launch your boat from the public beach and have a picnic when you return, or eat good seafood at a local restaurant. Travel farther south and you end up at Steinhatchee where more accommodations and choices of food await.

If that's enough civilization, head

LYNN STONE

"Its's amazing how close you can get to critters in a kayak."



BIG BEND SEAGRASSES PADDLING TRAIL

farther south by boat to Pepperfish Keys where the oysters are still safe, fish seem abundant and camping is always good (try Bowlegs Point if the Keys don't suit you.) When the camping at Bowlegs gets too much for you, head toward the Suwannee River with a stop at Horseshoe Beach for rest and resupply. Once at the Suwannee, start looking for manatees and a campsite at the edge of the Suwannee River National Wildlife Refuge, probably in the county part north at Shirred Island. If you want freshwater padding, travel up the Suwannee River to Georgia (the hard way to see the Suwannee).

While paddling this coast, you need to remember a number of things to be safe and happy. First and foremost, always bring enough drinking water with you, specifically a gallon a day per person. Few, if any, natural freshwater sources exist close enough to the coast to make them practical.

Planning food and gear for a kayaking trip is almost like planning a backpacking trip, just add about 50 percent more luxuries. Weight is important, but 15 to 20 more pounds won't make much difference.

The bugs (no-see-ums, mosquitoes, flies, etc.) can be bad at any time the temperature goes above 70 degrees. During the summer they can be trouble once you land unless a breeze is blowing. During the winter, they're almost always manageable. Trust luck and a good repellent for the winter, and think long and hard about doing more than day trips in summer.

Alligators and snakes can be seen but are rarely a problem. Alligators do swim in salt water but only cause concern if you walk in dark waters near the creek or river mouths. I almost stepped on one near St. Marks Lighthouse while crabbing. It didn't even move when I jumped straight up into the air and landed in my boat ready to move out. You may see them swimming around as you paddle, but none have ever attacked a kayak, as far as I know. People are always worried about snakes but I've never seen one in the winter, even a non-venomous one, and they are rare in the summer. There are no sea snakes, so just watch out for the occasional swimming rattlesnake and be careful where you put your hands and feet when on land.

Raccoons, armadillos and an infrequent skunk are part of every beach system, to such an extent that they can become a major nuisance. Armadillos make a lot of noise crashing in the bushes in the night and raccoons will get into any food left around, including coolers and tents. If messed with, skunks will be skunks. Prepare and protect!

Tides and weather can be tricky at any time of the year, so make certain you know what's expected and prepare for the eventualities. The spring tides can be very high or very low depending on the winds and phase of the moon. You might have to go out a lot farther than you think when the tides are low. I've had to go more than a mile offshore in order to get enough water to float the kayak. Sometimes the winds keep the tide from coming in on time or make it go out further than expected.

Storms can blow up any time of the year, usually thunderstorms in the summer and fronts in the winter. Lightning can happen winter or summer. If you know there may lightning, get off the water. A kayaker was killed by lightning in Sarasota Bay this year, the first on record. Be aware! Check your local NOAA radio station.

Kayaking the Big Bend coast is one of the many pleasures that await outdoors people in Florida. Paddle for distance, paddle for fun or paddle to experience the wildlife. No other excuse is needed.

*David Gluckman is an attorney and a lobbyist for many of Florida's environmental and conservation organizations. His new book, **Sea Kayaking in Florida**, has just been released by Pineapple Press.*

Never A Dull Day

Florida's Critical Wildlife Areas

By Janisse Ray

One might think the most critical wildlife area in Florida would be wildly remote. But the gleaming city of Tampa sits just across Hillsborough Bay, a scant six miles from Bird Island, a claw-shaped islet at the mouth of the Alafia River, where over 10,000 pairs of wading and shore birds nested last year. It is as if a burgeoning Tampa had elbowed the birds out and out, until no spare coastline remained, forcing them onto what is in spring and summer a frenzied maternity ward for some of Florida's most threatened birds.

Also called Alafia Banks, the island holds what is ranked as the most important breeding bird colony in the state. Its prestige comes not only from sheer numbers, but from the diversity of rare and listed species that occur there.

More species of birds may nest there than anywhere on the continent, according to biologist Rich Paul, the devoted overseer of Tampa Bay Sanctuary, a 10-island archipelago managed by the National Audubon Society. He called it "the most diverse mixed-species colony in the United States and maybe in North America." In 1993, 22 species nested there.

Alafia Banks is one of 21 places in Florida designated as Critical Wildlife Areas (CWAs) by the Game and Fresh Water Fish Commission, which means they are posted against trespass during certain times of the year critical to wildlife. Most protect wading and shore bird colonies, although a few harbor species like southeastern bats and gopher tortoises.

Don't be fooled by the number 21. Scores of places in the state are critical to wildlife, many of which should be officially designated as CWAs but aren't. The onerous task of identifying these sites has fallen on the shoulders of Brian Millsap, a biologist and head of the Nongame Wildlife Program of the Commission, whose staff is trying to determine sites consistently used by high concentra-

JANISSE RAY

Critical wildlife areas, like this one at Alligator Point, safeguard wildlife concentrations at crucial times.

LYNN STONE

Some critical wildlife areas protect colonies of wading birds like the roseate spoonbill, here shown foraging. Future designations might include swallowtail kite roosts or coastal habitat for migrating songbirds.

tions of wildlife and provide them long-term protection.

"I've watched people walking their dogs through a least tern colony," he said, "with hundreds of birds screaming overhead. I've seen people throwing frisbees to dogs into shorebird nesting colonies."

"Ninety-nine percent of people wouldn't choose to disturb birds if they understood the implications," he continued. That's what the CWA designation allows – public education, and a cordon of posted signs that say *please stay out. Enjoy from a distance.*

Early one morning Nancy Douglass, a Commission biologist who helps monitor Alafia Banks, showed me the site. We drove through Tampa, Douglass negotiating superhighways, me watching how the fog had started to thin, hanging in ribbons above the sleepy buildings. Sunrise was a low peel of orange, flattened by a pink elephant. Later, watching roseate spoonbills in breeding plumage, I would remember that sky.

A processing plant of some sort hunkered next to the public boat ramp at the river. Lights blinked on its towering smokestacks as if it were Christmas instead of Groundhog's Day, and across the river two more smokestacks boiled into a westerly breeze. As we unhitched the boat the sun came up, bright beneath the railroad trestle where a train hauling phosphate clattered.

Douglass was hoping to get out to the island before the big flocks of birds left to forage for the day. We crept across the bay toward a long spit exposed only at low tide, following a dancing porpoise. We were on time – the sandbar was heavy with roosting white and brown pelicans. Laughing gulls called. Cormorants flew over.

Keeping an ethical distance as a buffer for the anxious birds, we traced the island slowly, scanning the mangroves, cabbage palms and Brazilian peppers that tangled it. Birds were everywhere. They looked like ornaments in the trees.

Oystercatchers were pairing up, flying as twin w's. Turkey vultures on snags waited for the air to warm enough to lift. White ibis fed neck-deep in taupe-colored water. Great blue herons crouched in the trees, flapping and growling, and one zoomed in with a great glob of nesting material in its bill. We spied an osprey.

As we looped the island, a baker's dozen of roseate spoonbills materialized, backlit by the gold sun. I'd never seen one outside of photographs and today, my birthday, the sight was like unwrapping a present. Then, believe it or not, Douglass spotted a snow goose. It rocketed skyward, orbiting high above us.

"There's never a dull day at Alafia Banks," she said.

Wading birds in particular have been hard-hit by over a half-century of radical changes in Florida's landscape. Take reddish egrets, for example. According to Paul, early-1900s plumehunters probably extirpated this ▷

bird from the state, and until 1938, no nest was found. Since then, reddish egrets have returned to occupy their former ranges and recent surveyors counted 400 breeding pairs, 75 of these at Bird Island.

"To me, the wading bird populations are Florida's Serengeti," Paul said. "And we're losing them."

Although wading birds historically nested in large colonies that over the years have fragmented into smaller, more ephemeral ones, Paul blames their decline more on the loss of freshwater wetlands. "If you look at the species that are dependent on coastal wetlands for feeding (reddish egrets, roseate spoonbills, double-crested cormorants)," he said, "they are stable or increasing, but those that significantly depend on freshwater foraging habitats are declining. The worst examples are the wood stork and white ibis."

Other problems, like the daily interactions between humans and wildlife, though more easily addressed, have consequences just as severe. At Alafia, for example, airboats will sometimes buzz the islands or anglers unawarely get too close. "You almost don't come out without finding an injured or dead bird tangled in monofilament line," Douglass said. "It's a real problem." Once she found eight birds dead on a single stretch of line.

A few months later, in early May, on another critical wildlife area, threatened least terns were just beginning to hollow out slight depressions on the wide, white-sand beach of Alligator Point. They circled gracefully, not yet belligerent but already protective of their little, unfilled sandbowls. Their jeopardy was different: the presence of humans. Even people like me and Gail Fishman, a stewardship coordinator with The Nature Conservancy, threatened them.

Within two weeks, pockets of well-camouflaged eggs would fleck the beach, and although the terns seemed to prefer tiny patches of sea purslane and creeping grass, some dropped their eggs right on the hard crust of sand. The eggs were difficult to see and easy to crush underfoot.

"We're trading wildlife for people," Rich Paul had told me. "We will have wildlife only to the extent that we make room for it."

LYNN STONE

The place for critical wildlife areas is right where vulnerable wildlife populations, like that of the least tern, and human activity collide.

Problems facing breeding shorebirds are of another feather. "A lot of these birds are very intolerant of people and their pets," Douglass had said. When shorebirds are disturbed, they leave their nests unprotected against the gulls, fish crows and grackles waiting for a chance to snatch eggs or nestlings. Disturbance also exposes nests to the ruthless sun. Since the temperature of bare sand rises to over 100 degrees in summer, it doesn't take long to bake tern or skimmer eggs, or kill the young.

"Even on a quiet day," Douglass said, "There can be a beachcomber every 10 minutes. Between heat and predation, the birds are stressed."

On some CWAs the problems are more severe than occasional beachcombing. On St. George Island's causeway, for example, where terns and black skimmers nest on a tiny strip of land leading onto a busy bridge, many birds die on the hoods of automobiles despite posted speed-limits.

A breeding shorebird colony at the popular Huguenot Memorial Park, run by the city of Jacksonville, has declined at a heartbreaking rate lately. Even though the park is a state-sanctioned critical wildlife area, local policy permits beach-driving.

"No matter what we do," said Millsap, "people drive through the critical wildlife area. Invariably that colony is destroyed on Memorial Day or the Fourth of July."

Shorebirds begin looking for suitable nesting arrangements in spring, to squeeze a nest in the window of time before heavy rains begin mid-June. Sometimes they are bumped from one potential nesting site to another because of human activities. Nesting delays can mean trouble for survival of a species. Immoderate disturbance can cause complete abandonment of nests.

Although the 40-acre spit owned by The Nature Conservancy at Alligator Point is undeveloped and protected, as well as posted, people walk the beaches. No matter what, there are people.

Fishman and I sat awhile on the strand, where the receding tide had faintly sketched a range of mountains. A cotillion of loafing shorebirds snugged the point like a sock knitted with black and white yarn: snowy plovers, black-bellied plovers, willets, laughing gulls, royal terns, black skimmers, dunlins, Forster's terns, semi-palmated plovers. Among them the orange breasts of red knots (sandpipers) flared.

During peak nesting seasons, Fishman said, volunteers police the shore, explaining to beachgoers the fragility that surrounds them. Two years ago, The Nature Conservancy built a two-foot-high platform for nesting least terns but it was washed away in the March '93 storm and hasn't been replaced. Nonetheless, in 1993 the terns fledged 25 young, and the following year, 40.

"We're trading wildlife for people," Rich Paul had told me. "We will have wildlife only to the extent that we make room for it." And that's the purpose of critical wildlife areas, to remind us to make room. I gazed down the long, desolate expanse of Alligator Point, its sugar sand textured by swales and raked by the feet of ghost crabs. Humps of shells and seaweed trailed with blown sand. Least terns, a species that has recently taken to nesting on the flat rooftops of large supermarkets, here are able to follow natural orders, as much as possible among the beachgoers. Fishman and I don't belong.

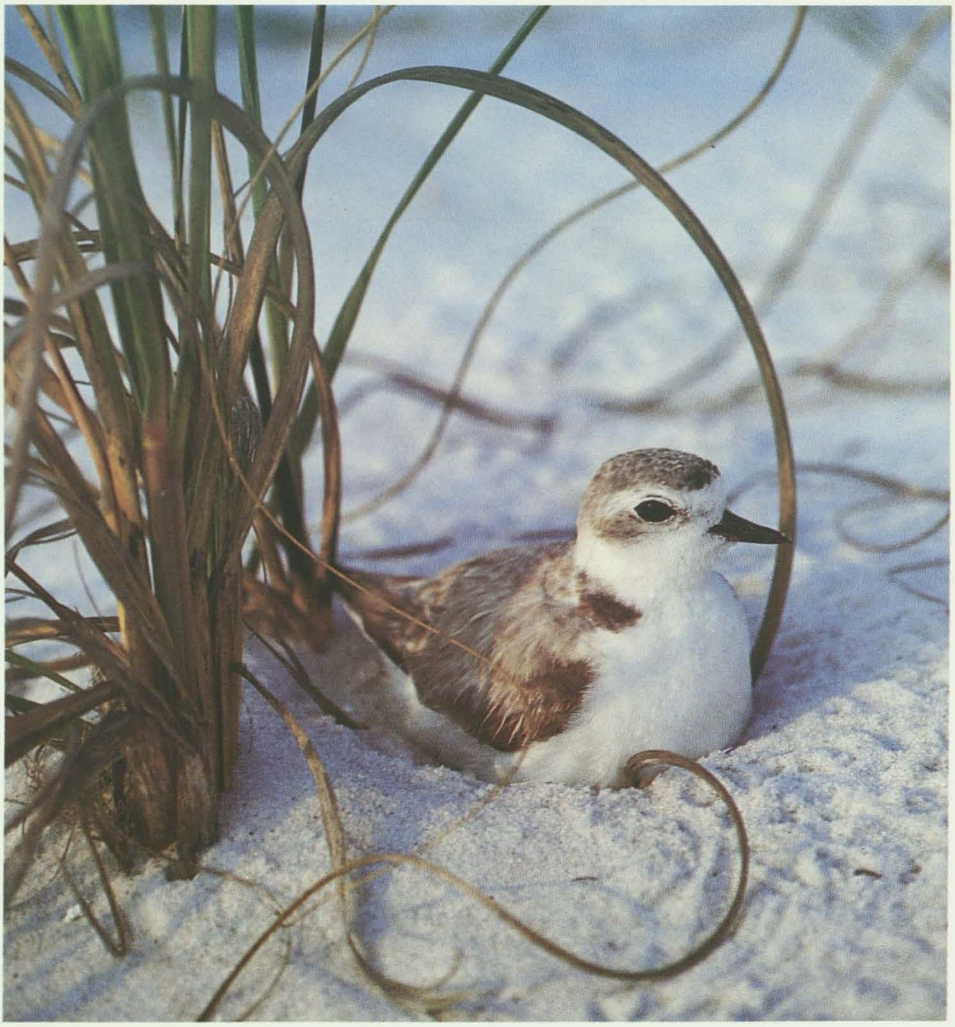
When we walk out, we step very carefully.

Janisse Ray is associate editor of FLORIDA WILDLIFE.

Active Critical Wildlife Areas

	County	**Closure Period**
Alafia Banks	Hillsborough	1 Dec. to 1 Sept.
Little Estero Island	Lee	1 April to 1 Sept.
Myakka River	Sarasota	1 March to 1 Nov.
Bird Islands	Duval	1 April to 1 Sept.
Fort George Inlet	Duval	"
Amelia Island	Nassau	"
Alligator Point	Franklin	"
St. George Causeway	Franklin	1 April to 31 Aug
Deerfield Island Park	Broward	Year-round
ABC Islands	Collier	"
Big Marco Pass	Collier	"
Caxambas Pass	Collier	"
Rookery Island	Collier	"
Bill Sadowski	Dade	"
Pelican Shoal	Monroe	1 April to 1 Sept.
Matanzas Inlet	St. Johns	"

JOE MAC HUDSPETH



Nesting snowy plover.

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____*Purple Gallinules* by Dillwyn "Dee" Smith
____*Florida Panther* by Donald "Rusty" Rust

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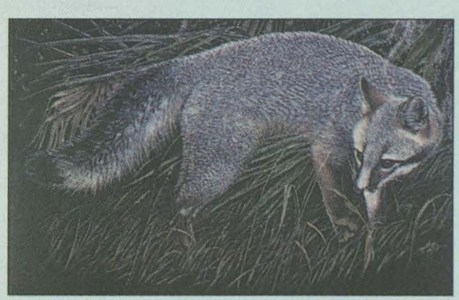
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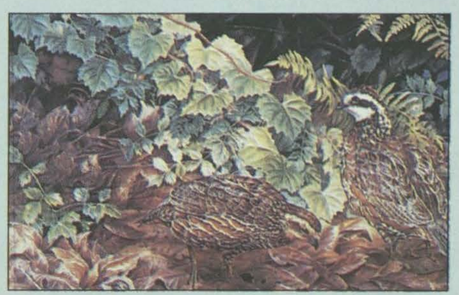
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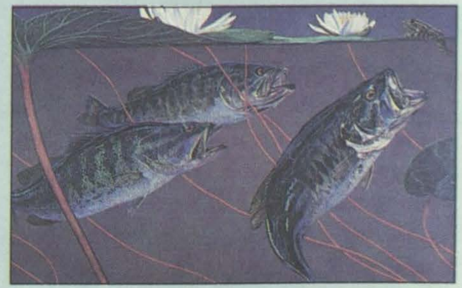
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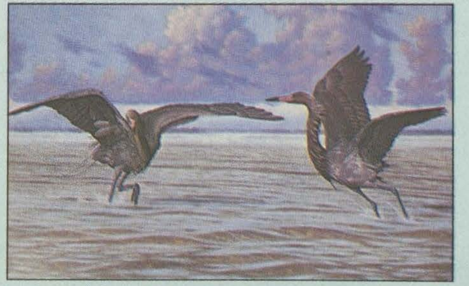
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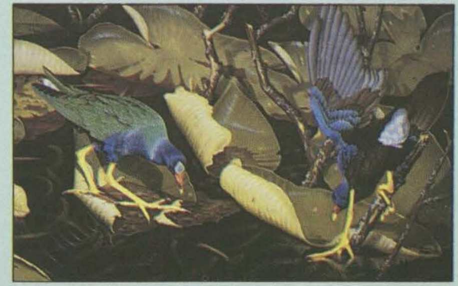
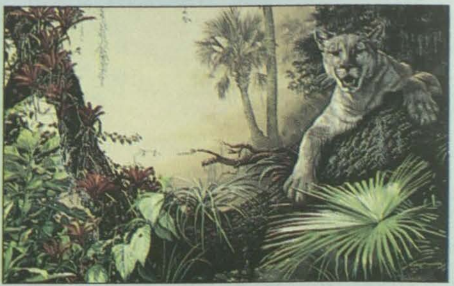

Purple Gallinules


Florida Panther

CONSERVATION UPDATE

SECOND CALL FOR READER SURVEYS

A resounding thank you goes to the hundreds of loyal readers who have returned our reader survey that appeared in the May/June issue of FLORIDA WILDLIFE. We would like to hear from everyone. If you have not done so already, would you please take a few minutes and let us know your thoughts regarding the magazine, via last issue's survey form.

LIFE JACKETS REQUIRED FOR BOATERS

As of May 1, everybody on board every boat must have a U.S. Coast Guard-approved wearable (Type I, II or III) life jacket.

"Although the new law doesn't require boaters to wear personal flotation devices (PFDs)," said Mike Suelter, boating safety coordinator of the Game and Fresh Water Fish Commission, "it does require that they have them on board. Hopefully that will encourage people to wear them. Probably 80 percent of the boating accident fatalities we see could have been prevented if the victims had been wearing PFDs."

SECOND RECORD FLATHEAD CAUGHT

For the second time in a 10-day span during April, a state-record flathead catfish was pulled from the waters of the Apalachicola River.

Bristol resident Ernest L. Porter became the latest state record-holder when he landed a 35.50-pound flathead from the northwest Florida river.

Porter's flathead surpassed the previous record of 34.44 pounds, caught by Lucretia A. Leath of Altha on April 15, 1995 from the Apalachicola River in Calhoun County.

OFFICER OF THE YEAR CHOSEN

Wildlife Officer Andy Krause of the Commission's Central Region has been named Wildlife Officer of the Year. Krause also will serve as the agency's nominee for officer of the year to the Fraternal Order of Police and the State Law Enforcement Chiefs Association.

Krause has been a wildlife officer since 1986. Before that he was a reservist in the Northwest Region for two and one-half years.

DARDEN PROMOTED

Woody Darden, previously head of the Commission's Office of Informational Services, has been promoted to director of the Everglades Region.

LOOKING FOR A FEW GOOD ARTISTS

The Commission's annual contest to select art for the 1996-97 waterfowl and turkey stamps will begin later this year, and all artists are encouraged to apply. Completed entries must be received in a sealed envelope between Sept. 5 and Oct. 10. The agency will announce the winners at the November Commission meeting.

For rules and entry forms, interested artists can call the contest coordinator at (904) 488-3831 or write to: Stamp Design Contest Coordinator, Florida Game and Fresh Water Fish Commission, Division of Wildlife, 620 South Meridian St., Tallahassee, FL 32399-1600.

ORDER WATERFOWL AND TURKEY PRINTS

Signed and numbered prints of Kenneth Nanney's fulvous whistling ducks and Thomas Brooks' rendition of Osceola turkeys now may be ordered from the artists. Nanney may be contacted at 2318 E. Avenue H #1804, Grand Prairie, TX 75050, telephone (214) 660-1968. Brooks is located at 2828 N. Canal Drive, Lakeland, FL 33801, telephone (813) 665-3972.

HEADING WEST

Janisse Ray, associate editor of FLORIDA WILDLIFE for the past two years, has received a coveted graduate student appointment in the University of Montana's creative writing department, where she will study nature writing. She will be leaving the magazine mid-July. During her tenure as associate editor the magazine was redesigned and has received awards from the Florida Magazine Association, Association for Conservation Information and the Environmental Education Foundation of Florida. The magazine staff and the Office of Informational Services will miss Janisse. We wish her and her son, Silas, well on their move to Big Sky country.

– Dick Sublette, Editor